

CLAIMS

What is claimed is:

1. An apparatus for treating fibrillation of at least one chamber of a heart of a patient, comprising:

a fibrillation detector;

a defibrillator for defibrillating the chamber of the heart, wherein the defibrillator is connected to the fibrillation detector and effects defibrillation subsequently to a time interval after detection of the fibrillation;

a warning device, connected to the fibrillation detector, that delivers a warning signal when a fibrillation has been detected; and

a control means having a control input actuatable by the patient, wherein the control means is connected to the defibrillator and delays the time of a defibrillation if the control means receives a corresponding signal by way of the control input, characterized in that the apparatus further comprises a condition detector that detects a hemodynamic condition of the heart, and the control means is connected to the condition detector and prevents a delay in the time of defibrillation when the condition detector detects a predetermined hemodynamic condition.

2. The apparatus of claim 1, wherein:

the fibrillation detector detects atrial fibrillation and
the defibrillator treats atrial fibrillation.

3. The apparatus of claim 1, wherein

the fibrillation detector detects ventricular fibrillation.

4. The apparatus of claim 3 wherein:

the defibrillator treats ventricular fibrillation.

5. The apparatus of claim 1, wherein:

the warning device is connected to the condition detector and outputs a first type of said warning signal when both the predetermined hemodynamic condition and the fibrillation are detected, and outputs a second type of said

warning signal when the fibrillation is detected with no predetermined hemodynamic condition.

6. The apparatus of claim 1, wherein:

the defibrillator delivers a pain killer and/or a tranquilizer prior to defibrillation.

7. The apparatus of claim 1, further comprising:

a pain therapy unit which is connected to the control means and to nerve electrodes and which delivers electrical pulses for numbing pain sensations by way of the nerve electrodes.

8. The apparatus of claim 1, wherein:

the condition detector ascertains the predetermined hemodynamic condition on the basis of one or more indicators.

9. The apparatus of claim 38, wherein:

the condition detector is connected to the fibrillation detector and detects ventricular fibrillation as the indicator or as one of the indicators.

10. The apparatus of claim 8, wherein:

the condition detector detects heart output as the indicator or as one of the indicators.

11. The apparatus of claim 10, wherein:

the condition detector detects heart output by means of epicardial or endocardial impedance measurements.

12. The apparatus of claim 8, wherein:

the condition detector detects a blood pressure as the indicator or as one of the indicators.

13. The apparatus of claim 1, further comprising:

means for manually initiating atrial defibrillation from outside the body, said means being at least indirectly connected to the defibrillator, for the patient to initiate defibrillation even if the fibrillation detector has not yet detected fibrillation.

14. The apparatus of claim 13, wherein:

the control means includes the means for manual initiation of atrial defibrillation.

15. The apparatus of claim 2, wherein

the fibrillation detector detects ventricular fibrillation.

16. The apparatus of claim 15 wherein:

the defibrillator treats ventricular fibrillation.

17. (new) The apparatus of claim 2, wherein:

the warning device is connected to the condition detector and outputs a first type of said warning signal when both the predetermined hemodynamic condition and the fibrillation are detected, and outputs a second type of said warning signal when the fibrillation is detected with no predetermined hemodynamic condition.

18. The apparatus of claim 3, wherein:

the warning device is connected to the condition detector and outputs a first type of said warning signal when both the predetermined hemodynamic condition and the fibrillation are detected, and outputs a second type of said warning signal when the fibrillation is detected with no predetermined hemodynamic condition.

19. The apparatus of claim 4, wherein:

the warning device is connected to the condition detector and outputs a first type of said warning signal when both the predetermined hemodynamic condition and the fibrillation are detected, and outputs a second type of said

warning signal when the fibrillation is detected with no predetermined hemodynamic condition.

20. The apparatus of claim 16, wherein:

the warning device is connected to the condition detector and outputs a first type of said warning signal when both the predetermined hemodynamic condition and the fibrillation are detected, and outputs a second type of said warning signal when the fibrillation is detected with no predetermined hemodynamic condition.

21. The apparatus of claim 2, wherein:

the defibrillator delivers a pain killer and/or a tranquilizer prior to defibrillation.

22. The apparatus of claim 3, wherein:

the defibrillator delivers a pain killer and/or a tranquilizer prior to defibrillation.

23. The apparatus of claim 5, wherein:

the defibrillator delivers a pain killer and/or a tranquilizer prior to defibrillation.

24. The apparatus of claim 17, wherein:

the defibrillator delivers a pain killer and/or a tranquilizer prior to defibrillation.

25. The apparatus of claim 18, wherein:

the defibrillator delivers a pain killer and/or a tranquilizer prior to defibrillation.

26. The apparatus of claim 19, wherein:

the defibrillator delivers a pain killer and/or a tranquilizer prior to defibrillation.

27. The apparatus of claim 20, wherein:
the defibrillator delivers a pain killer and/or a tranquilizer prior to defibrillation.
28. The apparatus of claim 1, further comprising:
a pain therapy unit which is connected to the control means and to nerve electrodes and which delivers electrical pulses for numbing pain sensations by way of the nerve electrodes.
29. The apparatus of claim 2, further comprising:
a pain therapy unit which is connected to the control means and to nerve electrodes and which delivers electrical pulses for numbing pain sensations by way of the nerve electrodes.
30. The apparatus of claim 17, further comprising:
a pain therapy unit which is connected to the control means and to nerve electrodes and which delivers electrical pulses for numbing pain sensations by way of the nerve electrodes.
31. The apparatus of claim 20, further comprising:
a pain therapy unit which is connected to the control means and to nerve electrodes and which delivers electrical pulses for numbing pain sensations by way of the nerve electrodes.
32. The apparatus of claim 19, further comprising:
a pain therapy unit which is connected to the control means and to nerve electrodes and which delivers electrical pulses for numbing pain sensations by way of the nerve electrodes.
33. The apparatus of claim 17, further comprising:
a pain therapy unit which is connected to the control means and to nerve electrodes and which delivers electrical pulses for numbing pain sensations by way of the nerve electrodes.

34. The apparatus of claim 3, further comprising:
a pain therapy unit which is connected to the control means and to nerve electrodes and which delivers electrical pulses for numbing pain sensations by way of the nerve electrodes.

35. The apparatus of claim 18, further comprising:
a pain therapy unit which is connected to the control means and to nerve electrodes and which delivers electrical pulses for numbing pain sensations by way of the nerve electrodes.

36. The apparatus of claim 5, further comprising:
a pain therapy unit which is connected to the control means and to nerve electrodes and which delivers electrical pulses for numbing pain sensations by way of the nerve electrodes.

37. The apparatus of claim 2, wherein:
the condition detector ascertains the predetermined hemodynamic condition on the basis of one or more indicators.

38. The apparatus of claim 3, wherein:
the condition detector ascertains the predetermined hemodynamic condition on the basis of one or more indicators.

39. The apparatus of claim 9, wherein:
the condition detector detects heart output as the indicator or as one of the indicators.

40. The apparatus of claim 37, wherein:
the condition detector detects heart output as the indicator or as one of the indicators.

41. The apparatus of claim 38, wherein:
the condition detector detects heart output as the indicator or as one of the indicators.

42. The apparatus of claim 39, wherein:
the condition detector detects heart output by means of epicardial or endocardial impedance measurements.
43. The apparatus of claim 40, wherein:
the condition detector detects heart output by means of epicardial or endocardial impedance measurements.
44. The apparatus of claim 41, wherein:
the condition detector detects heart output by means of epicardial or endocardial impedance measurements.
45. The apparatus of claim 10, wherein:
the condition detector detects a blood pressure as the indicator or as one of the indicators.
46. The apparatus of claim 11, wherein:
the condition detector detects a blood pressure as the indicator or as one of the indicators.
47. The apparatus of claim 37, wherein:
the condition detector detects a blood pressure as the indicator or as one of the indicators.
48. The apparatus of claim 40, wherein:
the condition detector detects a blood pressure as the indicator or as one of the indicators.
49. The apparatus of claim 43, wherein:
the condition detector detects a blood pressure as the indicator or as one of the indicators.
50. The apparatus of claim 11, wherein:

the condition detector detects a blood pressure as the indicator or as one of the indicators.

51. The apparatus of claim 9, wherein:

the condition detector detects a blood pressure as the indicator or as one of the indicators.

52. The apparatus of claim 38, wherein:

the condition detector detects a blood pressure as the indicator or as one of the indicators.

53. The apparatus of claim 39, wherein:

the condition detector detects a blood pressure as the indicator or as one of the indicators.

54. The apparatus of claim 41, wherein:

the condition detector detects a blood pressure as the indicator or as one of the indicators.

55. The apparatus of claim 42, wherein:

the condition detector detects a blood pressure as the indicator or as one of the indicators.

56. The apparatus of claim 44, wherein:

the condition detector detects a blood pressure as the indicator or as one of the indicators.

57. The apparatus of claim 12, further comprising:

means for manually initiating atrial defibrillation from outside the body, said means being at least indirectly connected to the defibrillator, for the patient to initiate defibrillation even if the fibrillation detector has not yet detected fibrillation.

58. The apparatus of claim 45, further comprising:

means for manually initiating atrial defibrillation from outside the body, said means being at least indirectly connected to the defibrillator, for the patient to initiate defibrillation even if the fibrillation detector has not yet detected fibrillation.

59. The apparatus of claim 46, further comprising:

means for manually initiating atrial defibrillation from outside the body, said means being at least indirectly connected to the defibrillator, for the patient to initiate defibrillation even if the fibrillation detector has not yet detected fibrillation.

60. The apparatus of claim 47, further comprising:

means for manually initiating atrial defibrillation from outside the body, said means being at least indirectly connected to the defibrillator, for the patient to initiate defibrillation even if the fibrillation detector has not yet detected fibrillation.

61. The apparatus of claim 48, further comprising:

means for manually initiating atrial defibrillation from outside the body, said means being at least indirectly connected to the defibrillator, for the patient to initiate defibrillation even if the fibrillation detector has not yet detected fibrillation.

62. The apparatus of claim 49, further comprising:

means for manually initiating atrial defibrillation from outside the body, said means being at least indirectly connected to the defibrillator, for the patient to initiate defibrillation even if the fibrillation detector has not yet detected fibrillation.

63. The apparatus of claim 50, further comprising:

means for manually initiating atrial defibrillation from outside the body, said means being at least indirectly connected to the defibrillator, for the patient to initiate defibrillation even if the fibrillation detector has not yet detected fibrillation.

64. The apparatus of claim 51, further comprising:

means for manually initiating atrial defibrillation from outside the body, said means being at least indirectly connected to the defibrillator, for the patient to initiate defibrillation even if the fibrillation detector has not yet detected fibrillation.

65. The apparatus of claim 52, further comprising:

means for manually initiating atrial defibrillation from outside the body, said means being at least indirectly connected to the defibrillator, for the patient to initiate defibrillation even if the fibrillation detector has not yet detected fibrillation.

66. The apparatus of claim 53, further comprising:

means for manually initiating atrial defibrillation from outside the body, said means being at least indirectly connected to the defibrillator, for the patient to initiate defibrillation even if the fibrillation detector has not yet detected fibrillation.

67. The apparatus of claim 54, further comprising:

means for manually initiating atrial defibrillation from outside the body, said means being at least indirectly connected to the defibrillator, for the patient to initiate defibrillation even if the fibrillation detector has not yet detected fibrillation.

68. The apparatus of claim 55, further comprising:

means for manually initiating atrial defibrillation from outside the body, said means being at least indirectly connected to the defibrillator, for the patient to initiate defibrillation even if the fibrillation detector has not yet detected fibrillation.

69. The apparatus of claim 56, further comprising:

means for manually initiating atrial defibrillation from outside the body, said means being at least indirectly connected to the defibrillator, for the patient

to initiate defibrillation even if the fibrillation detector has not yet detected fibrillation.